

In the Abstract

The present invention provides a A Ti-containing ferritic stainless steel sheet and a manufacturing method thereof, ~~the~~ thereof include stainless steel steels being formed while a refining load is decreased and having a low yield strength which exhibits superior workability.

Specifically, ~~the~~ The Ti-containing ferritic stainless steel sheet contains on mass percent basis: 0.01% or less of C; 0.5% or less of Si; 0.3% or less of Mn; 0.01% to 0.04% of P; 0.01% or less of S; 8% to 30% of Cr; 1.0% or less of Al; 0.05% to 0.5% of Ti; 0.04% or less of N, $8 \leq \text{Ti}/(\text{C}+\text{N}) \leq 30$ being satisfied; and the balance being substantially Fe and incidental impurities, wherein a grain size number of ferrite grain is 6.0 or more, and an average diameter D_p of precipitation diameters, each being $[(\text{a long axis length of a Ti base precipitate} + \text{a short axis length thereof})/2]$, of the Ti base precipitates in the steel sheet is in the range of from 0.05 μm to 1.0 μm . ~~In addition, the method for manufacturing a Ti-containing ferritic stainless steel sheet includes the steps of: hot rolling a slab having the composition described above, and performing recrystallization annealing of the hot rolled steel sheet at a temperature of (a precipitation nose temperature of Ti base precipitates $\pm 50^\circ\text{C}$) so that an average diameter D_p of precipitation diameters, each being $[(\text{a long axis length of a Ti base precipitate} + \text{a short axis length thereof})/2]$, of the Ti base precipitates is in the range of from 0.05 μm to 1.0 μm and so that a grain size number of ferrite grain is 6.0 or more. The method for manufacturing a Ti-containing ferritic stainless steel sheet, further includes the steps of: performing cold rolling; and subsequently performing final annealing of the cold rolled steel sheet at a temperature less than (a precipitation nose temperature of Ti base precipitates $\pm 100^\circ\text{C}$) so that the average diameter D_p of precipitation diameters, each being $[(\text{a long axis length of a Ti base precipitate} + \text{a short axis length thereof})/2]$, of the Ti base precipitates is in the range of from 0.05~~

~~μm to 1.0 μm and so that the grain size number of ferrite grain is 6.0 or more.~~